

OFFICE OF CLIMATE CHANGE, SUSTAINABILITY AND RESILIENCY
CITY AND COUNTY OF HONOLULU

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EXECUTIVE DIRECTOR &
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August 22, 2019

The Honorable Ron Menor, Chair
and Members
Committee on Zoning, Planning and Housing
Honolulu City Council
530 South King Street, Room 202
Honolulu, Hawai'i 96813

19AUG20 PM 4:08 CITY COUNCIL

Dear Chair Menor and Councilmembers:

SUBJECT: Bill 25 (2019) – Relating to the Adoption of the State Energy Conservation Code

The Office of Climate Change, Sustainability and Resiliency (CCSR) strongly supports the passage of Bill 25 (2019) in its current form, which adopts the State Energy Code, 2015 International Energy Conservation Code (IECC) with additional local amendments supporting electric vehicle (EV) "readiness" and renewable hot water heating.

With the recent release of the O'ahu Resilience Strategy, the City and County of Honolulu is taking a leadership role in addressing the impacts and risks of global heating as well as longer-term challenges associated socioeconomic inequality and high cost of living burdens. The high cost of energy continues to be a drag on our community's well-being and prosperity. Carbon pollution and its resulting climate change impacts exact an unequal toll on working families and vulnerable residents who disproportionately bear these costs while investors and corporate entities—many, many of whom do not reside in our community—continue to extract profit. Updating the City's Energy Code is a foundational building block for climate action that is just, fair, and equitable. The 2015 IECC addresses numerous energy efficiency improvements that will reduce greenhouse gas (GHG) emissions, pivot the island towards a clean energy economy, and improve long-term affordability for working families and residents.

Adoption of Bill 25 is estimated to reduce energy use for residents by 33-48%, and these savings will benefit residents and our island environment for the entire estimated 50-year life of newly constructed buildings. Currently, residential, commercial, and industrial buildings make up 37% of O'ahu's annual carbon pollution. With a shared state and City goal of carbon neutrality by 2045, Bill 25 is one of the

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most cost-effective measures the City can implement to ensure we are making large-scale progress to address climate change.

The Tropical Climate Zone option included in Bill 25 can save O'ahu residents even more energy beyond the 2015 IECC, and in many cases, will also help reduce building *construction* costs. Our office helped develop the Tropical option in close consultation with the Hawai'i State Energy Office, allowing builders to choose a compliance pathway that is more appropriate for our hot and humid tropical environment. This voluntary pathway includes a point system that rewards highly-efficient Energy Star appliances; large lanais and other features that take advantage of natural ventilation and tradewinds; ceiling fans in lieu of electric-powered air conditioning; and shading, glazing, and reflective surfaces to local tropical home occupants cool.

In addition, the Administration's proposed Energy Code update is designed to encourage technologies that directly reduce our energy consumption and reliance on imported fossil fuels. Based on O'ahu's abundant and consistent sunshine, a solar hot water (SHW) heater is the most economically-efficient *and* climate-friendly solution to heat water for single family homes. Over the course of 15 years, according to estimates developed from a cross-section of independent, third-party sources and analyses, a single solar hot water system will save the average household \$8,684 and avoid as much as 29 metric tons of carbon pollution, or the equivalent of 67 barrels of imported oil compared to a standard electric resistance water heater. Solar hot water heaters also result in \$320 to \$420 in utility savings per year per household versus on-demand tankless gas water systems.¹

An additional independent third-party analysis² confirms that SHW systems with either electric resistance or heat pump tanks as back-up produce the lowest overall carbon pollution. The analysis also confirmed that SHW systems with electric, heat pump, or natural gas tanks as back-up are the least cost options for residents. On-demand tankless gas systems perform poorly from both an economic *and* environmental perspective. Moreover, SHW systems offer a more resilient and reliable solution for homeowners, because 50, 80, or 120 gallon water tanks offer valuable thermal energy and water storage capacity in the event of an electricity outage or storm that interrupts water supply.

Bill 25 (2019) includes important new options to the State of Hawai'i's solar hot water mandate, which was first implemented over a decade ago. A recent Hawai'i state court decision clarified that exemptions to solar hot water for gas heaters should be

¹ For list of sources and calculations, see: <http://bit.ly/30NNt6x>.

² See *Solar Hot Water Heater Analysis* by The Greenlink Group here: <http://bit.ly/2Z74W9x>.

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"rarely, if ever exercised or granted."³ The City's proposed code update improves and expands the State's baseline solar water heater law by providing flexibility to install new technologies such as photovoltaic/battery storage, high efficiency heat pumps, and grid-interactive water tanks that benefit the entire grid. Furthermore, all these technologies are cost effective compared to older or fossil fuel alternatives, and support the State and City's overall sustainability and resilience objectives.

The Hawai'i Public Utilities Commission recently highlighted the criticality of so-called "non-wires alternatives" (NWA's), and how large new housing developments should be working with homeowners and the electric utility to help advance the State's overall energy and socioeconomic objectives.⁴

The Administration's inclusion of "grid interactive water heaters" in Bill 25 (2019) is such a non-wires alternative, and importantly, this alternative and others like it could be used to save ratepayers and residents from much costlier transmission and distribution system upgrades. In addition, residents of new homes will benefit directly in terms of cost, energy, and carbon savings; and will be free of the burden of a monthly utility bill for heating their water.⁵

It is important to note that Bill 25 in no way restricts the ability for developers, builders, or residents to use gas for cooking, drying or other appliances as they see fit—only hot water heating is covered under the code update.

Finally, as the City transitions to renewable sources of energy for transportation, it is essential that the energy code supports innovation and investment in infrastructure that will support these goals. Electric vehicles are more cost-effective from an upfront cost and operating and maintenance perspective than gasoline and diesel-powered vehicles. Retrofitting existing facilities to accommodate EV charging infrastructure costs four to eight times more than new construction, and this can be cost prohibitive and act as a deterrent to widespread adoption of EVs. The EV "readiness" provisions in this bill, which require 25% of newly constructed parking stalls for multi-family and commercial facilities be made ready for an EV charger, are a critical step towards achieving the City's transportation and climate resilience goals.⁶ It will also result in reduced

³ See description of Hawaii Circuit Court Judge Jeffrey Crabtree's ruling in *Hawaii Solar Energy Association and Sierra Club v. DBEDT* here <https://energy.hawaii.gov/resources/solar-water-heater-variance>.

⁴ See Letter from: Commission To: K. Katsura Re: Docket No. 2018-0165 – Instituting a Proceeding to Investigate Integrated Grid Planning, dated August 5, 2019. <https://dms.puc.hawaii.gov>.

⁵ See *Hawaiian Electric Application for approval to commit funds in excess of \$2,500,000 (excluding customer contributions) for Item Y00263, Ka'aahi Substation* in PUC Docket No. 2018-0055, filed on March 8, 2018. <https://dms.puc.hawaii.gov>.

⁶ For sources and calculations, see *Energy and Electrical Codes Stakeholder Presentation* here: <http://bit.ly/2JKuEvt>.

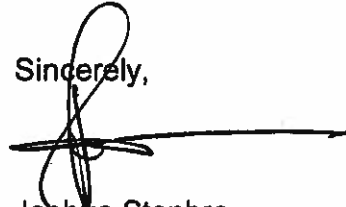
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transportation costs for local residents over time as the cost to operate an EV is substantially less expensive than a fossil-fuel powered car.

While we are having some success as an island moving away from fossil fuels toward a decarbonized economy, we are not doing so nearly fast enough. Steps such as updating our energy code are critical if we're going to keep the global temperature rise below 2°C, as called for in the Paris climate agreement. Bill 25 (2019) allows residents to have new innovative technological options that help mitigate and eliminate global climate heating and improves efficiency of our built environment, while also lowering out of pocket costs over the long run.

Thank you for the opportunity to provide these comments in support of Bill 25 (2019). Should you have any questions, please contact me at 768-2277 or resilientoahu@honolulu.gov.

Sincerely,

A handwritten signature in black ink, consisting of a large, stylized 'J' followed by a horizontal line extending to the right.

Joshua Stanbro
Executive Director and
Chief Resilience Officer

APPROVED:

A handwritten signature in black ink, appearing to read 'Roy K. Amemiya Jr.' with a stylized flourish at the end.

Roy K. Amemiya Jr.
Managing Director